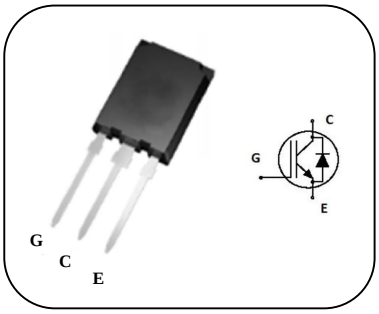


Features：

- **n** High speed swiching
- **n** Higher system effciency
- **n** Soft current turn-off waveforms
- **n** Square RBSOA using Trench-Fs technology

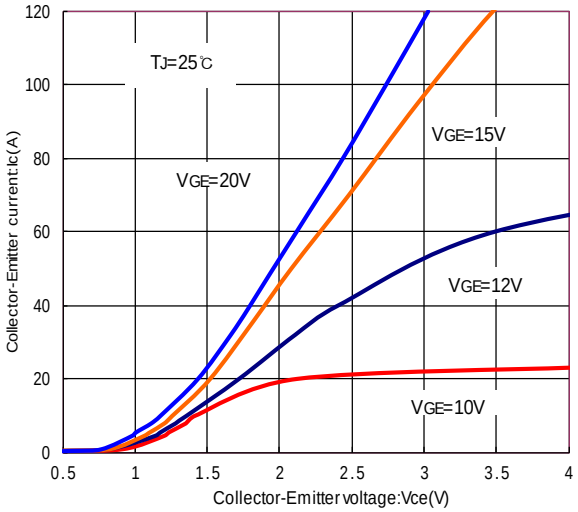
Typical Applications：

- **n** Inverter for motor drive(VFD)
- **n** AC and DC servo drive amplifier
- **n** UPS

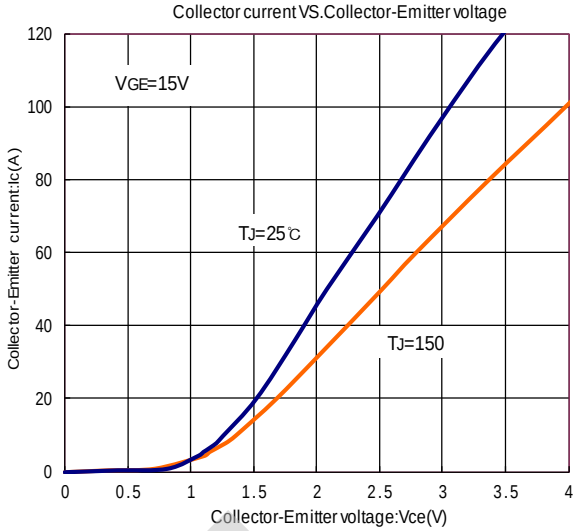
SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE			UNIT
			Min	Type	Max	
V_{CES}	Collector-Emitter voltage	T_j=25°C			1200	V
V_{GES}	Gate-Emitter voltage	T_j=25°C			±30	V
I_C	Continuous Collector current	T_C=25°C			100	A
		T_C=135°C			50	A
I_{CP}	DC collector current, limited by Tvjmax	T_P= 1ms			200	A
P_C	Power dissipation	T_j=135°C			181	W
T_j	Junction temperature	/	-40		175	℃
T_{stg}	Storage temperature	/	-40		150	℃
T_L	Lead Temperature (Soldering, 10 sec)				260	℃
I_{CES}	Zero gate voltage collector current	T_j=25°C ,V_{CE}=1200V，V_{GE}=0V			350	μA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V			±100	nA
$V_{GE(th)}$	Gate-Emitter threshold voltage	T_j=25°C ,V_{CE}=V_{GE}，I_C=2.0mA	5.1	5.8	6.5	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=50A		2.0	2.35	V
		T_j=125°C ,V_{GE}=15V，I_C=50A		2.4		V
		T_j=175°C ,V_{GE}=15V，I_C=50A		2.5		V
Q_G	Gate charge	V_{GE}=± 15 V		235		μC
R_{Gint}	Internal gate resistor	T_j=25°C		2.6		Ω
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V，V_{GE}=0V，f=1MHz		2990		pF
C_{res}	Reverse Transfer Capacitance			130		pF
$t_{(d)on}$	Turn-on time	T_C=175°C ,V_{CC}=600V，I_C=50A，V_{GE}=±15V，R_G=10Ω		30		ns
t_r				33		ns
$t_{(d)off}$	Turn-off time			256		ns
t_f				58		ns
E_{on}	Turn-on energy			5.3		mJ
E_{off}	Turn-off energy			4.1		mJ
I_{SC}	SC data	V_{GE}≤15 V, V_{CC}=600V, t_P≤10μs, T_{vj}=175°C		145		A
t_{sc}	Short circuit withstand time	V_{CES}≤600V,V_{GE}=±15V			10	μs
V_F	Forward on voltage	T_j=25°C ,I_F=50A ,V_{GE}=0V		1.9	2.3	V
		T_j=125°C ,I_F=50A ,V_{GE}=0V		1.87		V
		T_j=175°C ,I_F=50A ,V_{GE}=0V		1.85		V
I_{RM}	Peak reverse recovery current	I_F=50 A, -di$_F$/dt=1200 A/μs, V_R=600V,		46		A

Q_r	Recovered charge	T_j=175°C		8.60		μC
E_{rec}	Reverse recovery energy			3.5		mJ
t_{rr}	Reverse recovery time			290		ns
$R_{th(j-c)}$	Thermal resistance(Junction-to-Case)	IGBT			0.22	℃/W
		Diode			0.48	℃/W
$R_{th(j-A)}$	Thermal resistance(Junction-to-Ambien)			42		℃/W
Outline	TO-247P					

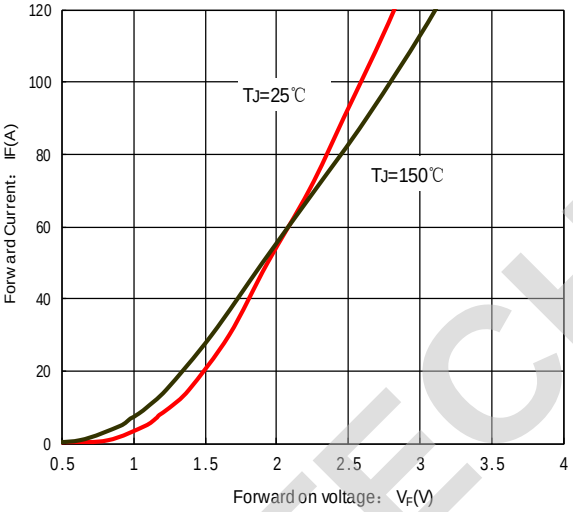
Collector current VS.Collector-Emitter voltage



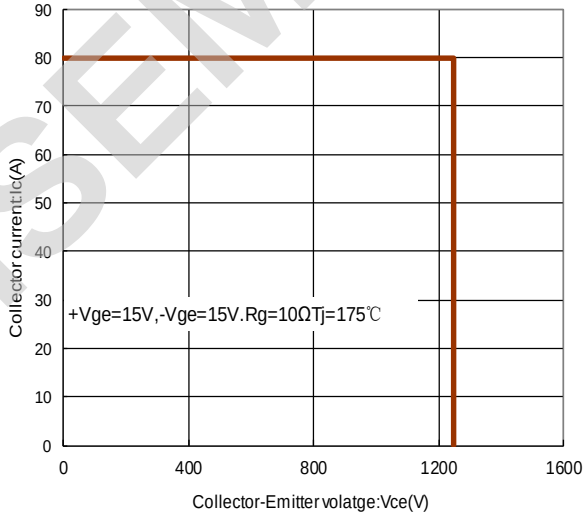
Collector current VS.Collector-Emitter voltage



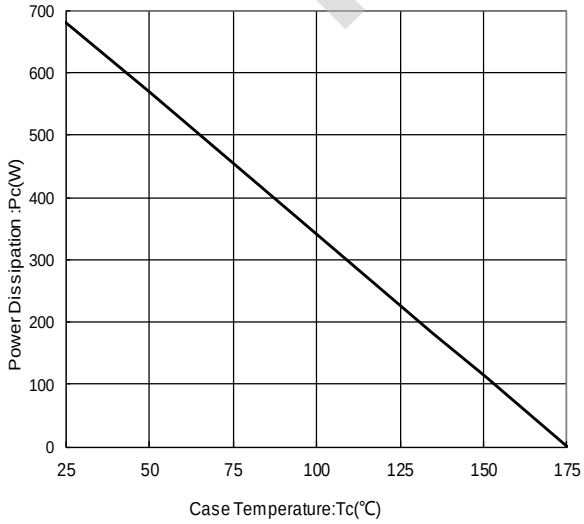
Forward Current VS. Forward Voltage



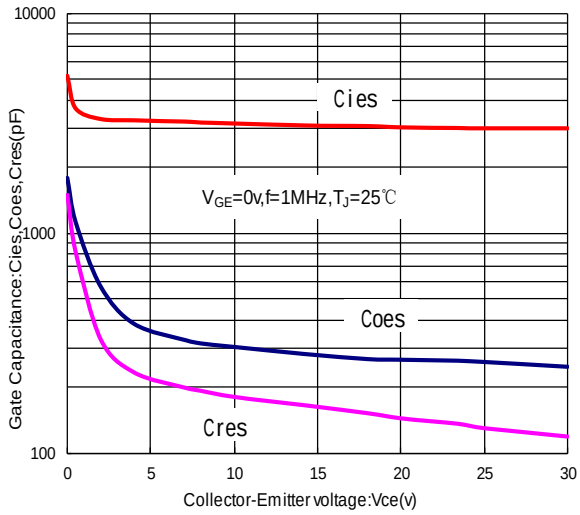
Reverse bias safe operating area



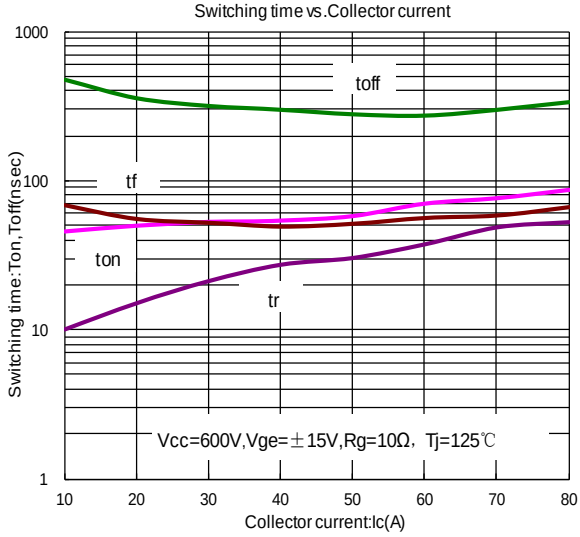
Power Dissipation VS.Junction Temperature



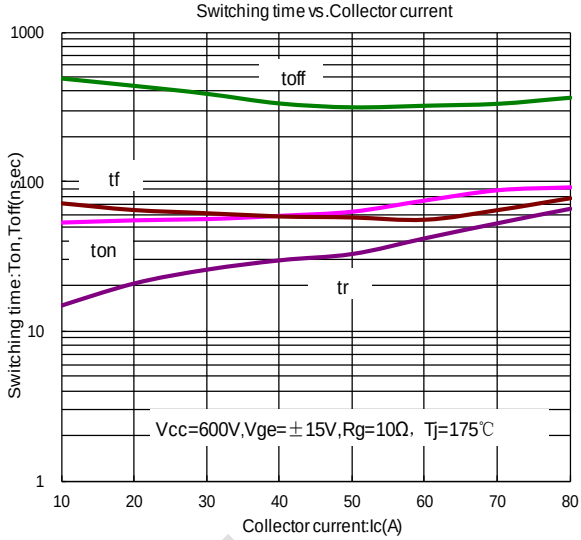
Gate Capacitance vs.Collector-Emitter Voltage



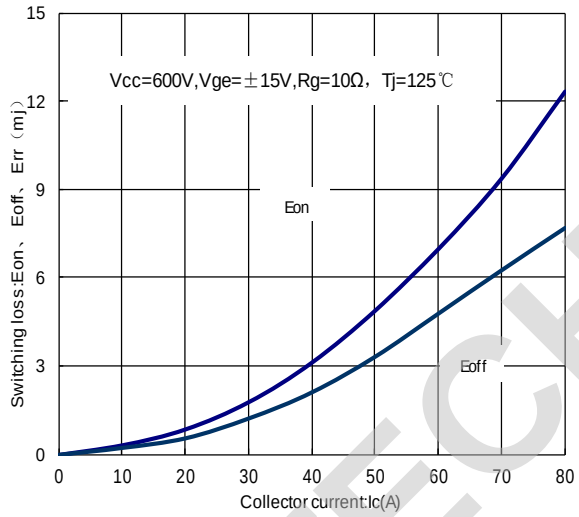
Switching time vs.Collector current



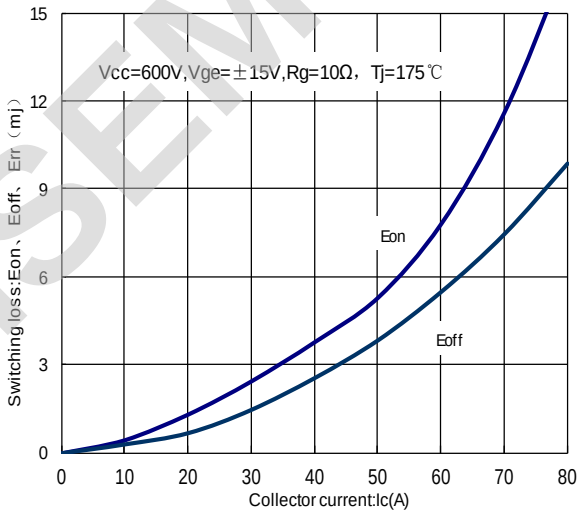
Switching time vs.Collector current



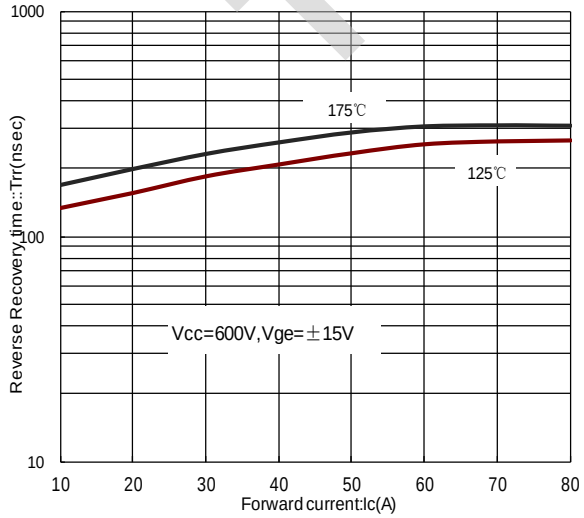
Switching loss vs.Collector current



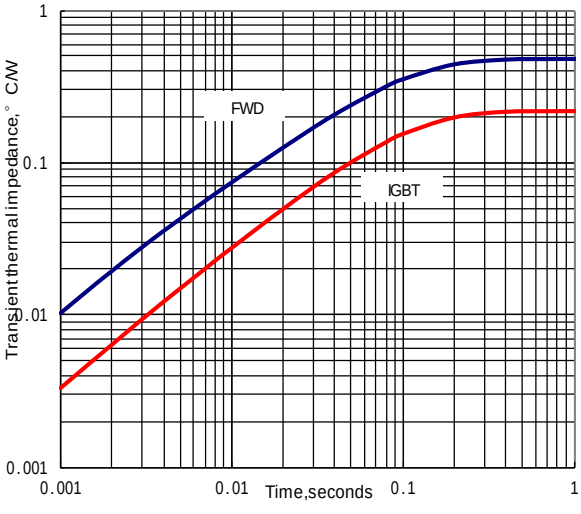
Switching loss vs.Collector current

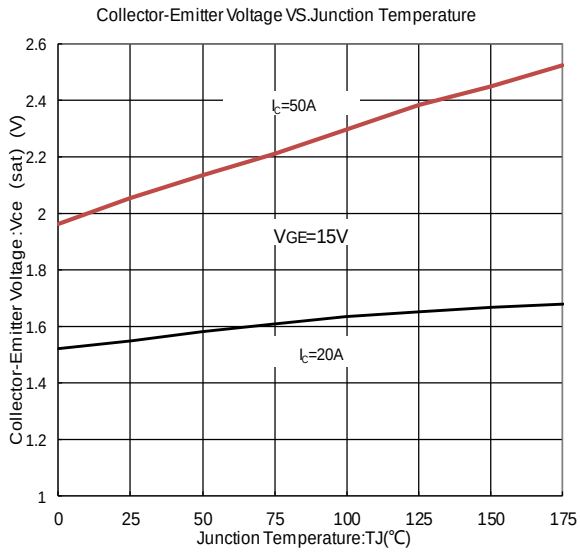


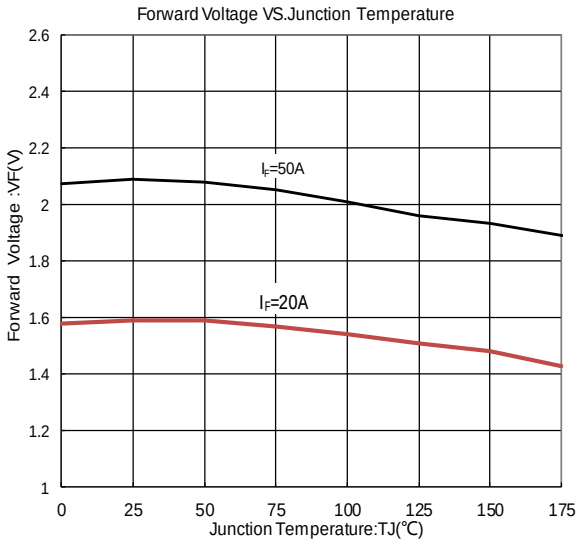
Reverse Recovery time vs.Collector current



Max. junction to case thermai impedance

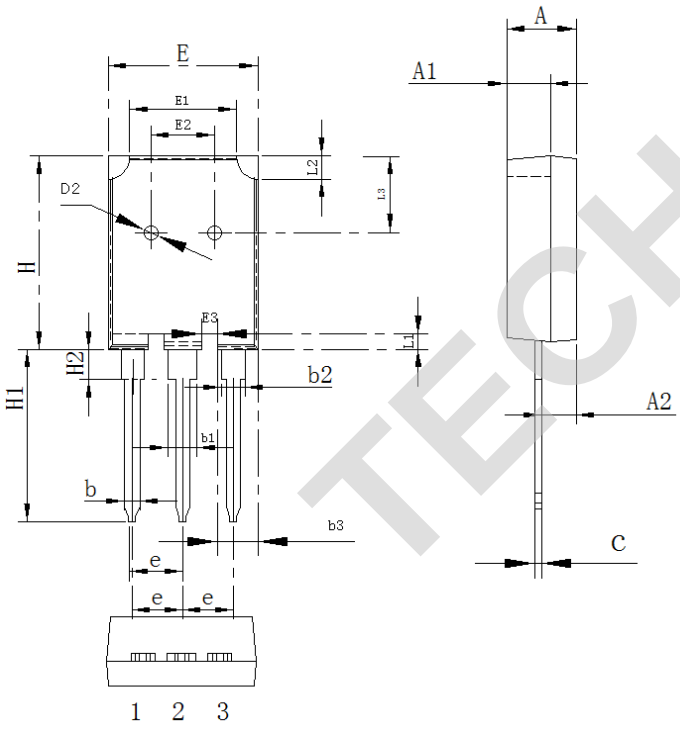






Outline:

TO-247P PACKAGE



Symbol	单位 mm		
	Min	Nom	Max
A	4.80	5.00	5.20
A1	2.80	3.0	3.20
A2	1.80	2.0	2.20
b	1.00	1.20	1.40
b1	2.90	3.10	3.30
b2	1.90	2.10	2.30
b3	3.90	4.10	4.30
c	0.45	0.60	0.75
e	5.25	5.45	5.65
E	15.6	15.8	16.0
E1	10.2	10.6	11.0
E2	6.30	6.06	6.90
E3	1.60	1.80	2.00
L1	0.35	0.50	0.65
L2	1.80	2.00	2.20
L3	9.50	10.0	10.5
H	20.5	21.0	21.5
H1	19.5	20.0	20.5
H2	3.50	4.00	4.50